Space Weather Forecast

Issued on Thursday 30 January 2025 at 13:29 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated M-class flares. G1 minor geomagnetic storms likely 31 Jan with connection to faster solar winds.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low, with only common class flares observed, the strongest from one of the regions on the northeast disc. There are seven regions on the disc, however the majority of these these are small and simple with only limited growth. The main development is currently with these northeastern regions, and a new region in the southeast disc.

No Earth-directed coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: Background slow wind conditions were observed, but with a possible weak transient influence 29/2100 UTC onward. Solar wind speed, was at background, easing from 350km/s to near 300km/s. Interplanetary Magnetic Field was Weak to Moderate, peaking at 31/0410 UTC. The north-south component was weakly southward at first but became weakly northward with a brief Moderate during the transient passage. Geomagnetic activity was Quiet throughout (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) persisted at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity is expected with a chance of isolated Moderate flares, primarily from the regions on the northeast disc.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs, with the outlook dominated by the fast winds from a large recurrent coronal hole in the north centre disk, with onset of fast winds most likely day 2 (31 Jan). Quiet activity (Kp1-2) is expected initially, but increasing to give a likelihood of Active to G1 Minor Storms, and a slight chance of G2 Moderate Storms, most likely on day 2.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background with no solar radiation storms forecast.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	60	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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